

CLAIMS

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1. Electric machine with at least one magnetic circuit and at least two structural groups that are moveable against each other, that are separated from each other by an air gap, and that contain at least one soft magnetic body each, partial areas of the surfaces of said at least two structural groups that lie adjacent to the air gap having inhomogeneous properties with regard to the magnetic flux, wherein at least one said soft magnetic body has a component that is disposed near the air gap and consists of a material with higher magnetizability and/or higher saturation flux density than a part of said soft magnetic body that is disposed more distant from said air gap, said part belonging to the same said magnetic circuit.

2. Electric machine in accordance with claim 1, wherein at least one said soft magnetic body has teeth at said air gap, said teeth consisting of grain oriented electric sheet, and at least one other said part of said soft magnetic body, said part consisting of electric sheet that is not grain oriented.

3. Electric machine in accordance with claim 1, wherein at least one said soft magnetic body has teeth at said air gap, said teeth being made of a cobalt-iron alloy, and at least one other said part of said soft magnetic body, said part being made of another iron alloy.

4. Electric machine in accordance with claim 1, wherein at least one said soft magnetic body consists of electric sheet of variable sheet thickness.

5. Electric machine in accordance with claim 1, wherein in a rotating machine said soft magnetic body is stacked in tangential direction and the thickness of said sheet increases as the radius increases.

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6. Electric machine with at least one magnetic circuit and at least two structural groups that are moveable against each other, that are separated from each other by an air gap, and that contain at least one soft magnetic body each, partial areas of the surfaces of said at least two structural groups that lie adjacent to the air gap having inhomogeneous properties with regard to the magnetic flux, wherein at least one said structural group contains at least two magnetic units that consist of a spooled pole segment and two non-spooled half pole segments, said half pole segments abutting at least one pole segment in the yoke area.

7. Electric machine in accordance with claim 6, wherein a T-shaped holding element is arranged between two adjacent said half pole segments, said holding element magnetically separating said magnetic units and preventing movement of said half pole segments it holds.

8. Process for the production of an electric machine in accordance with claim 1, wherein said electric sheet is deformed prior, during or after punching so that the thickness of said sheet varies.

9. Process for the production of an electric machine in accordance with claim 6, wherein said soft magnetic body of said pole segment is prefabricated independently from the other parts of said soft magnetic body, and after application of a core insulation medium is wound with a tensile stressed conductor wire, and said two non-spooled half poles are subsequently attached from opposite sides to said prefabricated spooled pole.